



*DOE Systems Biology Knowledgebase*

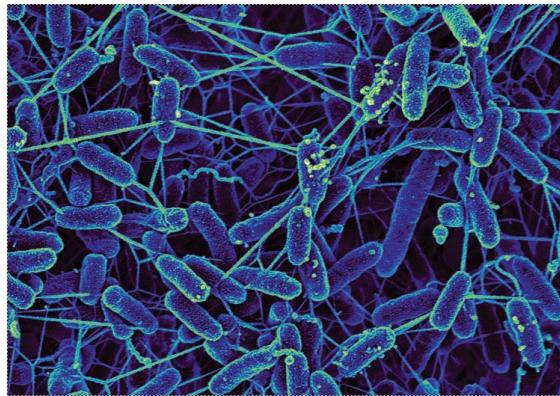
# KBase

Integration and modeling  
for predictive biology

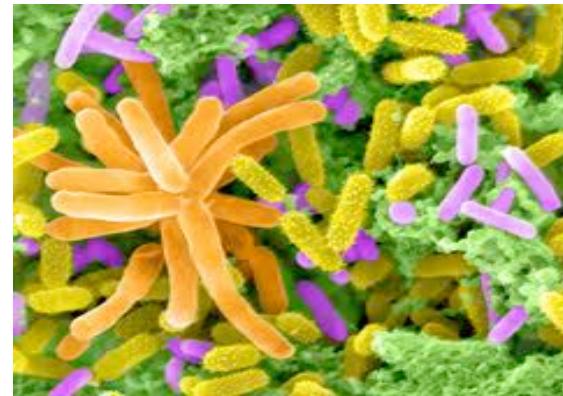
# KBase Overview

**Knowledgebase** enabling ***predictive*** systems biology.

- Powerful modeling framework.
- **Community-driven**, extensible and scalable **open-source** software and application system.
- Infrastructure for integration and reconciliation of algorithms and data sources.
- Framework for standardization, search, and association of data.
- Resource to enable **experimental design** and **interpretation** of results.



Microbes



Communities



Plants

# Who are we?



## Collaborators:

- Cold Spring Harbor Laboratory
  - University of California, Davis
  - Hope College in Michigan
  - University of Illinois at Urbana-Champaign
  - Yale University
  - The Joint Genome Institute
  - InterBRK Knowledgebase
  - Several University Knowledgebase Projects
- New Partners and Collaborators from Users and Stakeholders**

**Funding:** This work is supported by the U.S. Department of Energy, Office of Biological and Environmental Research under Contract DE-AC02-06CH11357.

# Working Together



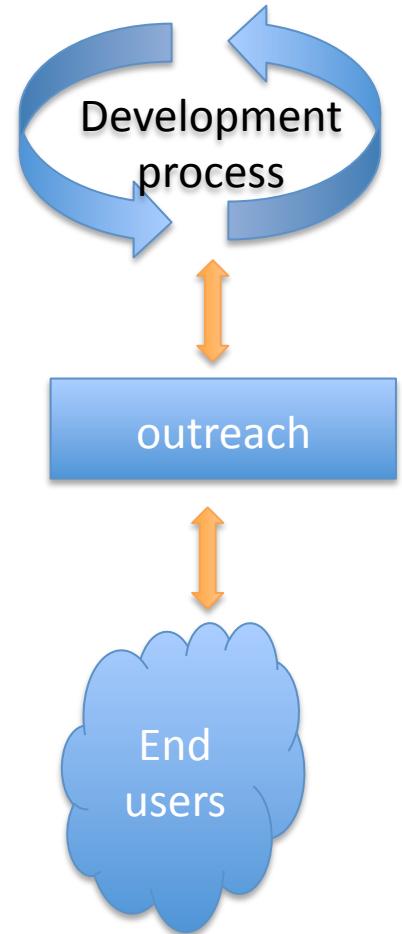
## Hack-a-thons and “Builds”



# Outreach Goals

## Goals

- Build a user community
- Drive development by user needs
- Teach users how to effectively use the system
- Improve system capabilities, documentation and workflows to meet community needs
- Identify new sources of data and facilitate data submission
- Recruit development partners



*We are directly engaging users to understand their goals, challenges, and needs. We are mapping end users, data providers, and developers to KBase development (features, data types, datasets) and inviting them to KBase events.*

# Outreach Events

## Training

***Our topics are being determined based on community need.***

- **Tutorials:** Learning the KBase system and services, offered as in person sessions and online resources. Tutorials are bi-monthly starting April 22<sup>nd</sup> (Third week of April, June, August ...)
- **Bootcamps:** Developing in KBase, offered as monthly in-person sessions
- **Workshops:** Solving scientific problems using KBase, offered annually
- **Data Jamborees:** Using data of your choice, offered bi-annually

Visit [kbase.us](http://kbase.us) and see our events calendar which includes upcoming **presentations and training** (direct link to calendar: <http://kbase.us/news/upcoming-events/>)

# Outreach Events

## Get Involved

- Visit [kbase.us](http://kbase.us) and see our events calendar which includes upcoming **presentations and training** (direct link to calendar: <http://kbase.us/news/upcoming-events/>)
- Send **email** to [outreach@kbase.us](mailto:outreach@kbase.us). We can also set up a convenient time to **speak** with you.
- View our **documentation** including tutorials at [kbase.us](http://kbase.us) (direct link to documentation: <http://kbase.us/developer-zone/>)

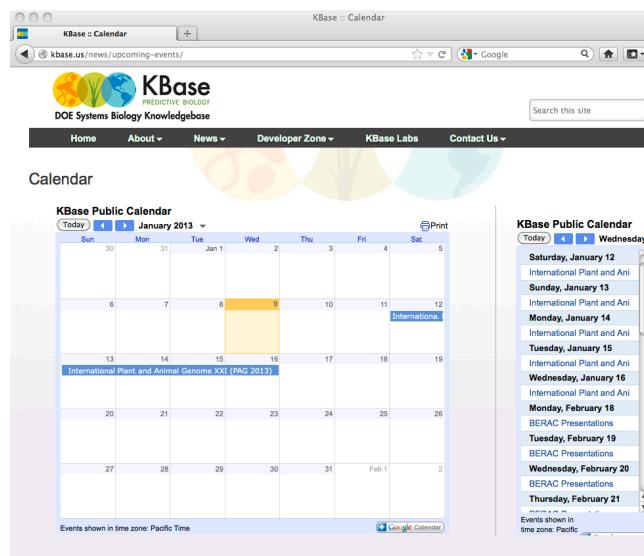
# Community-Driven

We need your input. We are currently...

- Learning about you about your needs
  - Data types used
  - Formats used
  - Analysis required
  - Visualizations needed
- Forging new collaborations. KBase is seeking community developers to contribute and collaborate with KBase.
- Looking for data contributions to help validate models.

# Online resources

- User manuals and tutorials
- Video tutorials (coming soon)
- Developer documentation
- Calendar of events
- FAQs
- Press



KBase :: Calendar

KBase Public Calendar

Today | [January 2013](#) | Print

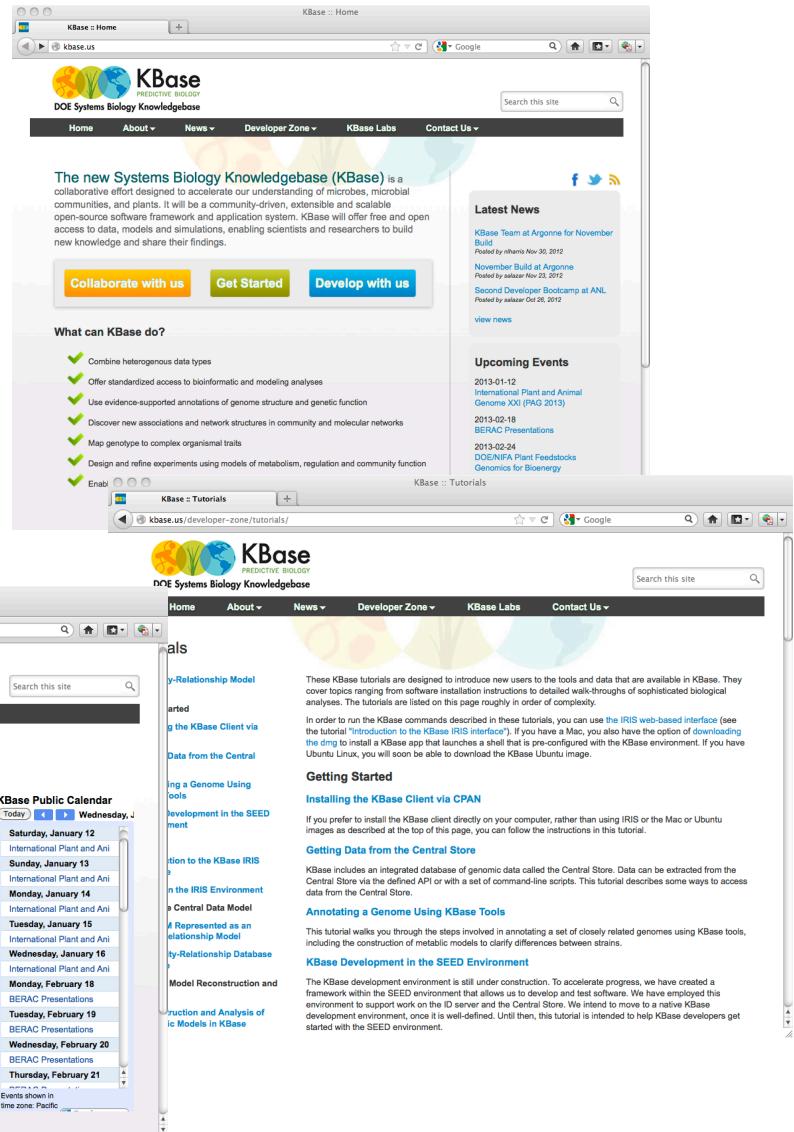
Sun	Mon	Tue	Wed	Thu	Fri	Sat
30	31	Jan 1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31	Feb 1	2

Events shown in time zone: Pacific Time

Google Calendar

**Tutorials**

- Getting Started
- Installing the KBase Client via CPAN
- Data from the Central Store
- Annotating a Genome Using KBase Tools
- Getting Data from the Central Store
- Annotation in the SEED Environment
- Central Data Model
- Represented as an Entity-Relationship Model
- Entity-Relationship Database
- Model Reconstruction and Analysis
- Construction and Analysis of Metabolic Models in KBase



KBase :: Home

The new Systems Biology Knowledgebase (KBase) is a community-driven, extensible and scalable open-source software framework and application system. KBase will offer free and open access to data, models and simulations, enabling scientists and researchers to build new knowledge and share their findings.

[Collaborate with us](#) [Get Started](#) [Develop with us](#)

**What can KBase do?**

- Combine heterogeneous data types
- Offer standard access to bioinformatic and modeling analyses
- Use evidence-supported annotations of genome structure and genetic function
- Discover new associations and network structures in community and molecular networks
- Map genotype to complex organismal traits
- Design and refine experiments using models of metabolism, regulation and community function
- Enable

**Latest News**

- KBase Team at Argonne for November Build
- November Build at Argonne
- Second Developer Workshop at ANL
- View news

**Upcoming Events**

- 2013-01-12 International Plant and Animal Genome XXI (IPAG 2013)
- 2013-02-18 BERAC Presentations
- 2013-02-24 DOENIFA Plant Feedstocks Genomics for Bioenergy

KBase :: Tutorials

KBase :: Tutorials

**als**

**y-Relationship Model**

Getting Started

Installing the KBase Client via CPAN

If you prefer to install the KBase client directly on your computer, rather than using IRIS or the Mac or Ubuntu images as described at the top of this page, you can follow the instructions in this tutorial.

Getting Data from the Central Store

KBase includes an integrated database of genomic data called the Central Store. Data can be extracted from the Central Store via the defined API or with a set of command-line scripts. This tutorial describes some ways to access data from the Central Store.

Annotating a Genome Using KBase Tools

This tutorial walks you through the steps involved in annotating a set of closely related genomes using KBase tools, including the construction of metabolic models to clarify differences between strains.

KBase Development in the SEED Environment

The KBase development environment is still under construction. To accelerate progress, we have created a framework within the SEED environment that allows us to develop and test software. We have employed this environment to support work on the ID server and the Central Store. We intend to move to a native KBase development environment, once it is well-defined. Until then, this tutorial is intended to help KBase developers get started with the SEED environment.



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